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Virginia Wildlife

Dedicated to the Conservation of Virginia's Wildlife and Related Natural Resources

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Features

4 **In Search of Lake Burke Muskie** by James R. Donald
Has the muskie disappeared from Lake Burke, or has it just become warier?

6 **Lead Shot: Another Victim?** by Ronald J. Kendall
Researchers are studying the effects of lead shot on upland game birds, specifically mourning doves

8 **Suburban Parks: Nature at Your Doorstep** by George F. Daniels
The exodus back to the cities and suburbs means re-thinking outdoor recreation

10 **Lake Anna Stripers, Rough and Ready** by Pete Elkins
Though still in the "adolescent" stage, stripers are providing plenty of excitement for Lake Anna anglers

14 **The Forgotten Cylinder Bore** by John B. Del Savio
Under certain conditions, the cylinder bore could be just what you've been looking for

16 **The Canebrake Rattlesnake** by James Bonavita
Fear and ignorance are preying on this snake

18 **Fishery Research, the Cooperative Way** by Garland B. Pardue
What is the cooperative fishery research unit?

25 **Floating a Classic: The South Fork of the Shenandoah** by John Heerwald
A follow-up to last month's story on this fabled river, including a map and plenty of tips on what to look for

32 **The Milkweed** by Tony Decker
Although a useful and enjoyable plant, milkweed should be approached with caution

34 **Bird of the Month** by Carl "Spike" Knuth
The Tree Swallow

Departments

3 Letters
21 Personalities
22 Growing Up Outdoors
23 Field Notes
24 It Appears to Me
29 Outdoor Notebook

Cover

Mourning dove by Karl and Steve Maslowski, Cincinnati, Ohio. Are mourning doves next in line after the waterfowl-lead shot controversy? See page 6.
Back cover: National Safe Boating Week is June 6 - 12. Photo by David Ryan, Richmond.

Letters

Geography Lesson

Often, while reading your informative and entertaining articles, I've wondered about the exact location in Virginia of each article. Since it's not possible while reading to consult a separate map, I would like to suggest that an outline map of the state be printed either at the beginning of each issue or each article. Within the outline, an asterisk or star could be placed showing the approximate location of the area described by the article. Not only would this help pinpoint the location, it would provide a quick and easy geographic education of the state for children and adults alike.

I hope you give my suggestion serious consideration.

Charles H. Stange
Reston

As a matter of fact, your idea is one that we have discussed among ourselves for quite some time. So often, we are faced with space limitations that prevent us from consistently publishing a map with each and every article. However, your suggestion does have great merit, and we'll take another look at the idea. We'll make an effort to use such a map at least in those articles where the location is an important factor. Thanks for writing.—Assistant Editor

Keep Injured Fish?

In the note by Gerald Almy "Keep Injured Fish" in the April issue, the author omits one very important suggestion: What do you tell the game warden when he inspects your catch and finds several undersize and therefore illegal fish in your creel?

What Mr. Almy suggests may be logical but it sure is not safe.

Frank H. Babers
Annapolis, Maryland

As those who have read Mr. Almy's articles in Virginia Wildlife *know, he is an advocate of releasing some of his legal catch to avoid depleting the fishery resource. It was this kind of release to which he referred in his piece. Naturally, if an angler catches a fish which is under the legal size, he would have to release it or face the consequences. While Mr. Almy did not make this distinction in the article, he believes—and so do we—that it goes without saying that anglers should observe the law.*—Assistant Editor

Reprint Requests

My family and I have enjoyed *Virginia Wildlife* magazine and particularly one centerfold identifying birds we would find at our feeders.

Would it be possible for you to reprint this in one of the upcoming issues? The *Virginia Wildlife* issue I am referring to was January, 1974, Volume 35 No. 1, pages 14-15 by John W. Taylor.

Thank you for your fine magazine.

Mrs. Maluine P. Graham
Pulaski

While we do not have plans to reprint the spread you mention, it is certainly possible that sometime in the future we would reprint that story or publish a similar one. Thanks for the suggestion.—Assistant Editor

I have enjoyed *Virginia Wildlife*, especially the nature-related articles, for 15 years. My collection of Elizabeth Murray's "In Nature's Garden" goes back to June 1971. I would love to see you combine all her articles into a giant reprint.

It is encouraging to see your magazine change with the times and become more concerned with education and conservation issues. As more of Virginia's beautiful rural areas become suburban and urban, I feel confident the Game Commission will continue to protect our wildlife and related natural resources for future generations of Virginians.

I understand that my favorite reprint, "Enjoy Native Plants Through Wise Use" is no longer available. I do hope you have plans to up-date and re-issue this very attractive and educational reprint.

Mrs. Nancy Arrington
Manassas

Your idea concerning Elizabeth Murray's columns has been suggested before, and it's a good one. As you know, money is tight, and we are forced to be conservative in the number and scope of the reprints and brochures we publish. For the same reason, the reprint you mention is not scheduled to be published again. It's possible that production of both of the publications you suggest could be re-negotiated once we learn how the new non-game funds will be distributed among the Commission's various programs.—Assistant Editor

Mysterious Gift

I have apparently received, as a gift, a subscription to your excellent magazine and would like to learn who my benefactor is.

I should add that I enjoyed your magazine as a sportsman from Wisconsin, a state that is also blessed with an abundance of game, fish and natural beauty.

I also commend you for your policy of allowing law enforcement officers to tell their story to the public, a chance we seldom have, and unfortunately, don't take advantage of often enough.

Incidentally, I suspect that my mysterious benefactor is one of the many fine officers I have met throughout the years from Virginia and if you are unable to reveal his name to me privately, you may publish all or part of this letter as my thanks and congratulations to you for a beautiful magazine.

Capt. Howard L. Erickson
Green Bay, Wisconsin

By now, you have received the name of your benefactor. We're glad you like the magazine, and are especially happy to know that you appreciate the law enforcement stories, since that is an area we've tried to improve upon recently.—Assistant Editor

Bigger And Better

In the October, 1980 issue of *Virginia Wildlife* you printed an article about Erik Springer's first fish, a 5" brim ("Growing Up Outdoors").

Erik is now nine years old and still enjoys fishing with his dad. Enclosed is a picture I took of Erik with his prize fish. Erik landed this seven-pound striper at Gaston Lake, Bracey, Virginia on August 5, 1981. I thought you would enjoy seing how far Erik has come since his first fish.

Let's hope every kid gets a chance to fish during "Take a Kid Fishing Week" this year.

Ruth Griggs
South Hill

April Fishing Issue

The April issue of *Virginia Wildlife* is quite outstanding and I send you my compliments for the continuing excellence of each succeeding month's edition.

William Edwin Booth
Richmond

In Search of Lake Burke Muskie

by James R. Donald

After the "Muskie boom" of the early 1970's, this fish has disappeared from Lake Burke— or has it?

What has happened to Lake Burke muskie catches? It's a question that I've asked myself, and others, for several years. Ideas and theories are plentiful, but satisfying answers are difficult to find.

The most frightening of these is the notion that the muskie population has been virtually wiped out. Another possibility is that the population is as large as ever but almost impossible to catch. I suspect that the truth lies somewhere between these two extremes—the population is both smaller and wiser.

We know a few things for sure: muskie managed to evade anglers for some time after the initial stocking; catches of muskie of six pounds and over exploded in the early 1970's, reaching 40 fish in 1973; and catches fell sharply after 1973, to two fish in 1977.

Lake Burke was first stocked with muskie in 1963, the year that the Commission of Game and Inland Fisheries began its experimental exotic fish program. While larger lakes were preferred for initial stockings because of their abundant food supply, experts thought that a small lake such as Lake Burke could be managed to sustain a muskie population. Heavy fishing of small lakes greatly reduces the predatory fish population, leading to an overabundance of forage fish. Adding muskie seemed the perfect answer to improving the lake's fish catches; the big predator would reduce overpopulation and stunting of forage fish. Most exciting of all was the prospect of having a new, mighty chal-

lenger ready to do battle with all, whether one was seeking crappie with minnows or trolling for largemouth bass.

The battles were slow in coming, however. Under the Commission's awards program—citations for muskellunge weighing six pounds and over—the first catches didn't show up until 1968. Two catches were made that year by surprised pursuers of other fish. Most anglers were unaware of the muskies' presence, unacquainted with the fish's habits, and ill-prepared to do battle once hook-ups were made.

Angler knowledge and experience, however, weren't long in coming. Aided by the continued early stockings and an exploding population, catches increased rapidly to the peak of 40 citations issued in 1973.

During the very productive period of 1970-1973, muskie fever spread rapidly among fishermen. Tiny Burke out-performed mighty Smith Mountain Lake, 100 catches to 77. Burke's claim to fame was heard throughout the South in 1973, following an article that I did for *Outdoor Life* based on Lake Burke and twin muskie catches one day by my wife and me.

Those were the "good" years. Lake Burke anglers wonder if they are gone forever, since only 30 muskie were caught from 1975 to 1980. Even more disturbing is that from 1977 to 1980, three of the four years saw yearly catches of only two fish.

The smaller number of catches would seem to be a good indication of a muskie population decline at Lake Burke. And there's a further indication of fewer muskie—a sharp drop in the number of fish trap-netted in the spring by the Commission for egg-taking purposes. From 1978 to 1980, only 13 fish were caught in nets, down from 50 during the three previous years, 1975 through 1977.

Admittedly there are a number of factors that make these less than perfect fish population indicators. Net-catches may vary considerably depending on whether they are made prior to or following spawn. Fewer people may be concentrating on muskie fishing. To me, however, the drop in line and net catches is strong evidence of a smaller muskie population.

The critical question then becomes: Why did the population decline? Did anglers catch and keep too many fish in the good years? Or did the lake prove to be too small for management to provide the environment for sustaining a larger number of fish? No one can say for sure, but there are some clues that at least suggest reasons for the population fall.

The fish itself offers insight. Muskie tend to be a very hard-fighting fish, with their struggle so intense that they go into shock and often do not recover. My experience is that more than half of the fish caught do not survive, either because they are kept for trophies or die from shock and exposure. Consider this: between 1968 and 1980, a total of 153 citation muskie were caught from Lake Burke. Even if slightly more than half were released and lived, this meant 75 would never fight again.

But fish caught by anglers weren't the only ones that risked death. Virginia was in dire need of muskie fry for stocking new waters as well as continued stocking of established lakes. The established lakes were a source of brood muskie that could be caught in the spring, prior to spawn, and stripped of eggs. Lake Burke initially proved to be an excellent source of muskie for egg-taking operations. The Commission trap-netted a total 71 fish from 1974 to 1980.

I don't know the survival rate for those 71 fish. One would think that the recovery rate would be very good, even with the shock and exposure the fish undergo. Jack Hoffman, chief of the Commission's fish division, says mortality is not usually high, but I suspect that something unusual did happen in 1979. Four of the six fish captured that year were later found dead, floating around edges of the lake. The dead four were twice the number of citation fish caught that year.

The next question becomes: Is anybody other than the angler really concerned about Lake Burke's muskie population ? I am convinced that the Virginia Commission of Game and Inland Fisheries is concerned. The Commission owns and manages for fishing the 218-acre lake in northern Virginia. They recognize that the lake is near several million people and heavily fished. In the early 1970's, the supervising biologist for the Commission called Lake Burke ". . .one of the most heavily fished and highest-producing lakes in the eastern U.S."

The final question is: What is the Commission doing about Burke's population problem? Trap-netting of fish, we hope, has ended. Fish were not netted in 1981 and Hoffman indicates that, with good luck, 1980 may have been the last year for trap-netting at Burke. Many lakes that have received muskie are being converted to tiger muskie, reducing muskie stocking needs. For the remaining requirements, a few lakes in southwest Virginia may be able to furnish the brood muskie for egg-taking operations.

Would the stopping of muskie netting in Lake Burke make a difference in future catches? I am encouraged by the opinion of fisheries biologists who say that the absence of netting fish should result in gradual improvement in the muskie population.

Other changes should also mean improvement, particularly if the size of muskie stockings is increased. In 1977, when I asked Commission biologist Ed Steinkoenig about the decline in muskie catches, he told me that when a non-indigenous species is first introduced to a body of water, the survival rate tends to be higher for the first few years. This begins to explain why so many fish were caught in the early 1970's. But he goes on to say that the muskie survival rate probably declined after the early 1970's which contributed to the decrease in population.

Recognizing this decline,the Commission took steps to increase the population. In three years, 1975 through 1977, a total of 5,109 fish were stocked, nearly three times the total of stockings during 1963-74. Since studies of the lake have shown that Lake Burke muskie reach a 30-inch length in three years, why haven't muskie catches improved in recent years?

Most revealing is a 1980 study, "Evaluation of the Fisheries of Northeast Virginia Reservoirs with Emphasis on Northern Pike and Muskellunge," by Commission biologists James McHugh and Ed Steinkoenig. It seems that muskie are a fearless fish, whatever their size, whether they are two inches or 50 inches in length. According to the authors,"Muskellunge concentrate on their prey so intently they can be touched. This concentration makes them very susceptible to predation and cannibalism." But the larger the muskie stocked, the better the chance for survival. Initial stocking in Lake Burke included fingerlings up to 11 inches in length, while later years saw a predominant stocking of small fingerlings, falling in the two- to four-inch range. A very important recommendation of the authors is that a minimum length of six inches be established for stockings.

The authors' recommendation appears to have had an impact already. Fish stocked in 1980 ranged in size from four and a half to 24 inches, with most fish between six and fifteen inches. Stockings through July 1981 ranged from eight to 10 inches. McHugh expects a very good survival rate.

This all leaves me with a fair bit of optimism about future expansion in the muskie population of Lake Burke. But will the lake's food supply support a larger population on a continuing basis? Here, too, there is a basis for hope. Hoffman says the Commission will continue to stock threadfin shad, an experimental program initiated in 1976. While the purpose of this stocking program is to improve the forage base of largemouth bass and crappie, and it has, I'm thinking, too, that muskie get more than their fair share of the highly preferable shad.

I'm betting that an expanding and well-fed population will mean a return to the "good" years. □

by Ronald J. Kendall

Lead Shot: Another Victim?

The problem of waterfowl eating lead shot is well-known but upland game birds may be suffering as well. How is lead shot affecting the mourning dove?

Waterfowl mortality from lead shot poisoning has been a well recognized management problem for a number of years. What are the potential lead shot exposure problems in upland game birds? Are mourning doves the next victims in the lead shot controversy?

Mourning doves are an important game species in most of the southeast and are often hunted on wildlife management areas where birds are concentrated around corn, millet and wheat plantings. Extensive hunting around these fields leaves behind a substantial amount of lead shot. Wildlife researchers have found lead shot in the gizzards of mourning doves that frequent these shot-over fields. Apparently these birds ingest pellets, possibly mistaken for grit particles, while feeding in and around these managed dove hunting fields. Wildlife investigators report that the number of mourning doves found to have at least one lead shot in the gizzard at any given collection has ranged from one to six-and-a-half percent of the birds.

Because of the lack of information on mourning dove exposure to lead shot and the potentially detrimental effects on mourning dove populations, scientists in the department of fisheries and wildlife sciences at Virginia Tech undertook a large-scale lead shot research project. They used mourning doves collected from wildlife management areas in four Atlantic states: Maryland, Virginia, North Carolina and South Carolina.

The doves were collected from six wildlife management areas and each bird was identified with the date and place of its collection, aged and examined for lead shot in the gizzard. In the laboratory, researchers made chemical analyses of mourning dove tissues, using the liver as an index of short-term high exposure to lead and bone as an index of long-term low-level exposure to lead. From these data, the researchers tried to learn not only if such tissue lead concentrations could be harmful to doves, but specifically how significant spent lead shot was in the overall well-being of the dove. While mourning doves are exposed to spent lead shot, they are also exposed to other forms of lead, such as lead distributed along roadways from automobile exhaust. Automobile exhaust

Phyllis Saroff

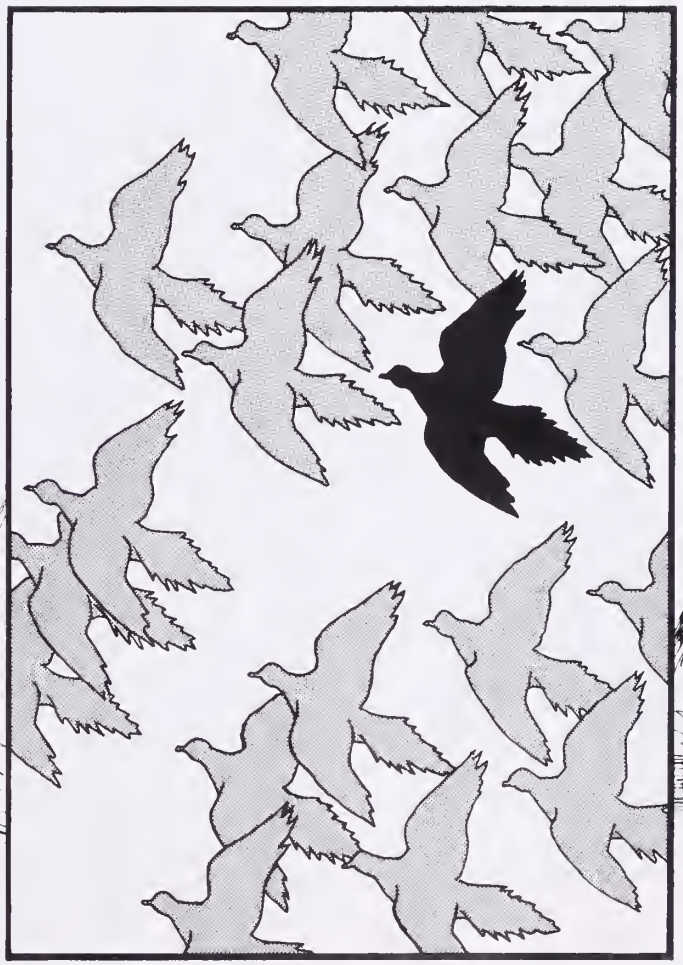
leaves large concentrations of lead along the edges of roads, where mourning doves often go to find grit which they use to help digest their food. With this fact in mind, it was necessary to not only examine birds for lead shot in the gizzard, but as well analyze their tissues for lead which could serve to elucidate not only lead shot exposure but also exposure to environmental lead.

Results showed that 2.4 percent of the mourning doves had one lead pellet in the gizzard. Only one bird had two lead shot. Chemical analyses of livers indicated that lead concentrations in approximately five percent of the birds were high enough to suggest recent exposure to a high amount of lead which may or may not have been lead shot. (Controlled laboratory studies have shown that within 24 hours after ingestion of lead shot, mourning dove liver lead is substantially above background concentrations.)

The data on bone lead concentration provided interesting results. Overall, bone lead concentrations in mourning doves were high. These kinds of tests have also been performed on ruffed grouse, a species generally dwelling in remote areas. Ruffed grouse showed low bone lead concentrations when compared with mourning doves. Also, bone lead of mourning doves varied according to the location of the bird's collection: those that were collected from those wildlife management areas which were near areas of higher population density (generally more roads, therefore more potential environmental lead exposure) had higher bone lead than those collected from more rural areas. Higher amounts of bone lead generally reflected increased environmental lead. Although lead shot ingestion can increase bone lead concentration through erosion and absorption of lead pellets, bone lead is also responsive to long-term buildup of lead which could be consumed in the form of lead-contaminated roadside grit. Bone lead provided other interesting observations: adult mourning dove bone lead concentrations were significantly higher than those in young birds. This finding would seem reasonable in that adult birds would have been alive longer in the environment; therefore, they would be exposed to a greater degree of environmental lead over a period of time. However, some individual juvenile birds contained very high bone lead concentrations not found in adults. Although results were inconclusive and further studes along these lines are needed, it seems possible that individual juveniles are building up such high bone lead concentrations that they could be dying before reaching adult status.

A minimum of 2.4 percent and a maximum of 5.1 percent of the collection of doves from six game management areas in four middle Atlantic states either has a lead shot in the gizzard or had possibly recently ingested a lead pellet (based on liver level analyses). Further studies are needed to determine the extent of lead shot exposure in the general dove population, as a large segment of the dove population probably does not utilize wildlife management areas. □

According to the liver lead analyses, 5.1 percent of the birds—about 1 in 20—had high enough lead concentrations to suspect lead shot ingestion. Lead pellets were actually found in the gizzards of 2.4 percent of the birds in the study.



Suburban Parks: Nature at Your Doorstep

George F. Daniels

As urban and suburban Americans' awareness of and appreciation for the outdoors and wildlife increase, but their ability to get to "the wilderness" decreases because of financial concerns and fuel shortages, the suburban park becomes an increasingly important part of American life. Two of the reasons that the middle class is returning to the cities are convenience and economy: everything,from cultural activities and shopping centers to schools and offices, is readily accessible, and the same practical attitude is forcing many to rethink the ways that they spend their leisure time. Ironically, this can conflict with their desire to "get away from it all." For many, the suburban park is the answer. If you have never visited a suburban park, here are some of the things you should keep in mind as you make your first trip.

Be prepared to pay an entrance charge; most of these parks charge a nominal fee, and in many which do, you may have the opportunity to obtain a season pass.

Try to time your first visit on a day of the week when the park is not congested. Obviously, the park will be crowded on the weekends during the pleasant, warmer days of the year, and it will be more difficult to orient yourself to the park at those times. And after facing the traffic and parking problems of the week, you don't want to encounter the same circumstances during your time off, so if you have any leisure time during the week, jump at the chance to explore and get the feeling of your new park. You might also consider visiting a park during the "off-season"—when colder weather comes, you will be presented with a different look at the park.

If the park has a visitor's center, take advantage of it on your first visit. Free brochures and orientation programs are usually available, and people at the information desk will also prove helpful.

After your orientation, perhaps you'd like to explore on your own or take a directed walk given by the local ranger. The latter can be extremely beneficial for the novice, since the ranger knows the area and can answer questions along the way.

Don't expect to see animals native to the area frequently or without effort. To the contrary, to see any native animals, besides squirrels, chipmunks, and a few song birds and blackbird species, will require patience and effort.

In many suburbs, some species have adjusted so well to their surroundings as be nuisances, foraging through garbage cans and anything else they can find. In the park, you will find the same situation: animals, accustomed to (and unafraid of) human beings, raiding garbage cans, and because of their habits, they are spotted easily.

We seldom see nocturnal animals, however, for obvious reasons. Still, you may find evidence of them during the day by looking for footprints near likely feeding places. The best places for you to search are along stream beds, ponds, and rivers. Or, look for prints in a muddy area after a fresh rain.

Occasionally, if you are very observant, you may see a raccoon sunning himself in the cavity of a tree, or you may be fortunate enough to meet a deer or spot an owl. Such experiences, while rare, are extremely rewarding, particularly if you have done your homework and are able to identify what you have seen.

The average city dweller or suburanite does not observe easily. He must begin with the conclusion that his eyes are seeing only a small part of the total picture which surrounds him. Part of this is due simply to lack of close observation. He may see trees and shrubs but they mesh at a distance, and at first he may not see many distinguishing characteristics.

Another reason that he misses out on so much is that he is always looking down, instead of increasing his field of vision by looking straight ahead, around, and upward. Granted, there are occasions for looking down, when looking for specific things of interest, or when in dangerous areas, but if this is habitual, you miss some spectacular sights.

If you are going into a wooded area you cannot afford to look at your surroundings in a passive way. Use all of your senses! Each plant, shrub, and tree of a given species is unique. Closely examine the shape of the leaves, the bark, the flowers, and the fruit.

If you are in a strange park, going on your own without any orientation could be risky. There is the chance of becoming lost, injury in dangerous terrain, or the temptation to eat some fruit which could be harmful.

Check in with a ranger to indicate roughly where you are going if you plan to take a long hike, and he'll tell you how long it should take. He'll probably want you to check in when you come back, so he'll know if and when to come looking for you.

On your initial visits to the park, follow the trails that are marked, and don't make any diversions. Take it slowly at first until you are used to the terrain, and carefully observe your surroundings. You might even want to keep a check list of the flora and fauna that particularly interest you, so you'll know what you're looking for. And follow the rules of the trail. While you may examine a plant, you may not remove it from the park. Everything should be left in its natural state.

Obviously, different people visit a park for different reasons: to picnic, to camp, to fish, to visit the park as a relief from the sweltering city, to change their pace from the usual daily routine. Many will not go far beyond the immediate vicinity of the visitor's center and are perfectly content. But for those who care to venture, a whole new world is waiting—one in which you will find yourself stimulated by the offerings of the outdoors. For the city dweller or suburbanite, it's the closest thing there is to nature at your front door! □

George F. Daniels has been a seasonal park ranger with the National Park Service for many years.

Phyllis Saroff

Lake Anna Stripers

Rough & Ready

Though still in the "adolescent" stage, Lake Anna's striped bass population provides plenty of excitement for the prepared angler.

by Pete Elkins

(Far left) Larry Kinder nets a nice Lake Anna striper.
(Left) A 7 to 7½ customized graphite rod increases the productivity of vertical jigging.
(Above) Vertical jigging with Hopkins 75 spoons is most productive in cold weather.
(Following page) Angler uses an electric motor and depth finder system which "sees" what is directly below him.

Every Virginia angler has his private vision of angling paradise. For some, the vision is exquisite brook trout in hemlocked-shaded streams. Acres of flooded willows alive with largemouth bass fill the dreams of others. Many envisage an endless series of boulder-strewn riffles harboring smallmouth bass.

It's difficult for me to choose only one species to populate a personal paradise. But freshwater striped bass would be at the top of the list.

I've pursued this capricious newcomer for more than a decade. During that time, opportunities permitted extensive fishing in striper waters from Oklahoma's huge Lake Texoma to South Carolina's Lake Murray and striper meccas in between.

Lake Murray was probably the most consistent striper producer, but Virginia waters have provided the most exciting action. Smith Mountain Lake's nocturnal stripers accounted for most of the excitement.

Now, however, Lake Anna is providing more than its share of thrills. Even though Lake Anna's striper fishing is still in the adolescent stage, there are many stripers already in the 20-pound class.

More importantly, the stripers are well distributed throughout the lake. Despite the poor showing at two recent striper tournaments held on the lake, the stripers are catchable for those willing to learn their habits and perfect certain techniques.

My experiences reveal that stripers are much easier to catch on artificial lures during colder weather; thus, fall through early spring is a peak period. Indeed, the coldest

winter months usually produce a lot of stripers to anglers skilled in vertically jigging Hopkins spoons or bucktail jigs.

Lake Anna's stripers are no exception to these generalizations. Yet, Anna has an added feature that complicates the equation somewhat. The nuclear power function creates a warm water discharge into the lake. Consequently, warm water areas do two things: concentrate shad and alter normal seasonal behavior of the stripers.

For example, I have enjoyed excellent results while jigging Hopkins spoons in the portion of the lake above the Rt. 208 bridge, but have less consistent jigging results lower in the lake, closer to the warm water discharge area.

In the warm water, stripers appear to suspend and feed near the surface or stay on the bottom in relatively shallow water. In both cases, near surface suspension or bottom dwelling in shallow water, vertical jigging is an ineffective method.

Live bait or casting artificial lures produce far better results under such conditions. Thus far, live bait is most consistent in the warm water areas during colder months or throughout the lake during warmer months.

Live bluegills are the favored bait because they are relatively easy to obtain. Large shiners are even better, but few marinas around the lake offer shiners in the five- to six-inch class. Perhaps the best bait of all is live shad, which, unfortunately, are commonly the most difficult to obtain and maintain alive.

The effectiveness of live shad is linked to a fundamental fact: shad are the primary forage for striped bass in fresh water.

At the outset, I must confess a basic dislike for live bait fishing. While I appreciate the skill involved in effective live bait use, catching fish on artificial lures is personally more satisfying.

Lake Anna's stripers are gradually modifying my outlook. The transformation began in October when Larry Kinder and I were exploring the upper end of a long creek. Shad were everywhere. Stripers were occasionally mauling the shad, but the big fish ignored our lures. Finally in desperation, I foulhooked a large shad from a nearby school on a Hopkins. Quickly transferring the still healthy shad to another rod with a single hook, I lobbed the awkward bait out beyond the closest shad school. The water was less than 15 feet deep. Almost instantly, the line leaped forward as a big fish took the shad. After permitting the fish to take 10 or 15 feet of line, I set the hook hard. When she finally surrendered many minutes later, the striper weighed in excess of 14 pounds.

While not a big striper, a fish that size on 12-pound line in relatively shallow water stages a memorable battle.

Since the occasion, I have concentrated on looking for Lake Anna's stripers either in jigging depths of 25 to 40 feet, or in warmer shallow water areas of the lake. In the shallow water, live shad have proven devastating.

Only a few days before this was written in early November, Larry and I received more than a dozen strikes on live shad from very healthy stripers in the six- to 20-pound class. We lost our share through a combination of errors, but the incident was typical of recent trips to the lake. Stripers are relatively abundant.

The key to locating them seems to be pinpointing large shad concentrations. If the shad are on the surface, stripers will be close by, even if the water isn't as deep as that normally associated with reservoir stripers. If the shad are suspended 10 to 15 feet below the surface, stripers will normally be 10 feet or so below them, particularly if there are submerged treetops or bottom brush in the area.

Another interesting aspect of locating Lake Anna's stripers is the fact that stripers are frequently on the bottom near white perch schools. White perch are well distributed throughout the lake. Although a bit of a nuisance because of their small size and eagerness to strike jigged Hopkins spoons, they can indicate stripers.

Generally, most stripers that I've encountered mixed with (or feeding on?) white perch have been in 20- to 30-foot depths near a deeper creek or river channel. Obviously, an accurate depthfinder or chart recorder simplifies locating stripers.

Locating Anna's stripers is only half the battle. After finding them, the next hurdle is inducing the sometimes fickle creatures to strike. As already indicated, live bait is the easiest way during warm weather months or in warm water areas of the lake.

There are many ways to rig live bait. One of the simplest and most effective consists of a small black swivel (no larger than #3) at one end of about 36 inches of monofilament (20 pound in most situations, but as light as 12 under bright, clear water conditions). A single hook completes the rig. Hook size should be matched to bait size. Generally, 2 to 4/0 will cover

the waterfront. One particularly effective hook is the short shank "salmon hook," a Mustad #9510XXXS. This hook's short shank and long, thin point don't inhibit strikes, yet penetrate and hold well when the hook is set.

In water less than 15 feet deep, the swivel and hook are sufficient to hold the live bait at an effective depth. Basically, the drill is simply to lob the bait out, and let it free-swim in the potential striper area.

Resultant strikes will be easily discerned. The first clue is often an accelerated swimming action by the bait as it senses or sees the approach of a big striped predator. Then, there will be a fairly solid strike, followed by a fast run with the live bait.

While awaiting strikes, the reel should be in free spool or, in the case of spinning reels, the bail should be open. When the striper hits, the angler should permit it to take several yards of slack line; then close the bail or engage the reel and strike hard when the line tightens to the running fish.

It's difficult to state how much slack line should be given to the fish prior to striking. My experience indicates that waiting too long is worse than being impatient. Thus, I now set the hook almost as soon as the line tightens straight from rodtip to fish. A faster strike also assures lip-hooked stripers, which can be released more easily.

While fishing live bait for suspended or bottom-hugging stripers in water deeper than 15 feet, the live bait rig should be modified by adding a sliding "worm" slip-sinker above the swivel. Use the lightest practical weight in terms of depth, bait size, and wind conditions. Changing weight to fit conditions is facilitated by the swivel location. Simply cut the line above the swivel, change sinkers, and retie. An eighth of an ounce is a good starting point. Many anglers underestimate the counterproductive effect of excessive hardware, too large line, and obtrusive hooks.

Striking fish is much simpler in deeper water. When the striper pulls the rod tip down toward the surface, strike. In all cases, reel drag should be adjusted lightly enough to withstand the shocking strength of a hooked striper's initial run. Tight drags and heavy-handed treatment work for largemouth, but not stripers.

Live bluegills are usually hooked just below the dorsal fin. Shiners should be hooked through both lips with hook point up. Live shad, the most delicate of all, survive well when hooked through the bony ridge just above their mouths.

Live bait give way to artificial lures in cooler water or when the stripers are "schooling," or actively feeding on surface shad schools.

Surface action at Lake Anna is fairly common, especially during times when boat traffic is light or during overcast conditions. It's a sad truism that most stripers are caught on weekdays, not weekends.

Thus far, the surface action at Lake Anna involves fairly small schools of stripers. I have yet to encounter feeding stripers in the numbers sometimes seen at Lake Gaston, Buggs Island or the South Carolina lakes. However, Lake Anna's surfacing stripers demonstrate the typical ferocity and competitive urge that usually triggers hard strikes to virtually any shad-imitating lure.

Surfacing stripers should be approached with long casts. A straight, actionless retrieve is often best. Sometimes, bigger fish may be taken by letting the lure drop several feet below the surface activity. The angler must maintain a tight line to the falling lure in order to detect an engulfing strike.

Bucktail jigs, Hopkins spoons, Cordell "spots," or any shad imitation will usually produce. At times, surfacing stripers can be discriminating with respect to lure length, more than lure type. Thus, the lure should approximate the size of the shad being preyed upon at the time.

Popping plugs worked rapidly along the surface through or along the edge of the surface melee result in explosive strikes.

Like surface-feeding stripers everywhere, Lake Anna's action is short-lived. Consequently, no time can be wasted. Experienced anglers carry at least three rods rigged for surface feeding fish. Rather than lose precious time unhooking a fish during the topwater spree, they simply drop striper and rod in the bottom of the boat, and grab another rigged rod for yet another cast.

If the fish are to be released, a bucktail jig is the best choice. It takes only an instant to twist the hook free without removing the striper from the water.

As exciting as surface action is, the most consistent Lake Anna striper action with artificial lures involves vertical jigging in 20- to 40-foot depths.

Vertical jigging techniques that produce at Lake Anna are little different from those used at any striker lake. Lake Anna does, however, yield a lot of hefty largemouth to striper jiggers. The walleye potential also adds an extra element to striper jigging.

My best artificial lure results at Lake Anna have come, not surprisingly, while vertically jigging Hopkins 3/4-ounce 75 "Shorty." The larger Hopkins 150 Shorty is also effective, especially under windy conditions. Some anglers favor white bucktail trebles on the Hopkins. Personal experience convinces me to rely on a plain treble hook. In fact, I remove the factory hook from the Hopkins, and replace it with a lighter wire bronze hook. The addition of a #5 or smaller split ring to the spoon's eye enhances jigging action, and avoids line abrasion which may occur with a direct line tie to the spoon.

Heavy monofilament also reduces jigging effectiveness. With big stripers above or in underwater "structure," 20-pound seems none too heavy. Yet, 14-pound usually draws more strikes in clear water.

A good vertical jigging rod for stripers is a specialized affair. Indeed, there are few good versions available on the market. Many dedicated striper fans build their own from seven- to seven-and-a-half-foot graphite blanks. So-called "popping rods" are a good compromise, but the rod butt is too long for comfortable handling while wearing bulky coldwater clothing. The rod needs length, butt strength for leaning on big fish, stiffness for good strike detection, and sufficient flexibility in the tip to prevent ripping hooks from often lightly-hooked stripers.

All of these requirements, some seemingly irreconcilable, can be satisfied best through a customized rod. For a more casual angler, typical bass "worming tackle" will do a creditable job.

The drill is simple. Freespool the spoon to the bottom, engage the reel, and begin a rythmic upward "jigging" action with the rod. As the spoon falls back after the upstroke, the rod tip should follow it back down. The key is to avoid slack line while permitting the spoon to fall freely. Almost all strikes come as the lure falls.

Vertical jigging can be a monotonous method until the angler realizes the effectiveness of it. I use it throughout the year, and have taken anything from 20-pound-plus stripers through yearling bluegills on the Hopkins 75.

Whatever the method, vertical jigging or free-lining live shad, Lake Anna's stripers are abundant and willing to strike for those persistent anglers who are willing and able to learn the lake's striper habits.

After another trip or two to Lake Anna, stripers will probably be at the undisputed head of my list of species to populate an angler's paradise. □

Well-known outdoor writer Pete Elkins' most recent contribution to Virginia Wildlife, *"Renaissance of An Old Lure," appeared in last month's issue.*

The Forgotten Cylinder Bore

At ranges of less than 30 yards, the cylinder bore gives a wider and more uniform pattern than any other choke.

by John B. Del Savio

One of the most freqently forgotten, yet useful chokes is really no choke at all: the true cylinder bore. In the days before the plastic shot-protecting wads, lead pellets would flatten out and become deformed when they hit the forcing cone choke or rubbed against the barrel's walls. The deformed shot would fly erratically and patterns would become sketchy or blown out, especially when using the cylinder choke, thus giving it a bad name.

The advent of the plastic wad column solved this problem and the cylinder bore is due for re-evaluation, especially to upland gunners. Most upland game, whether pheasant, grouse, quail, rabbit or woodcock, are shot at ranges of less than 30 yards. Under that range, the cylinder bore is deadly. At lesser ranges, the cylinder bore's pattern using shot-protected shells gives a wider and more uniform pattern than any other choke.

I learned this the hard way. My pet double was bored improved cylinder and modified, and I used this on all upland game. When I was "on" at close ranges, the birds were smoked; otherwise it resulted in a clean miss. Sometimes I got a cripple that would get caught in the outer fringe of the pattern. I soon became frustrated when shooting at close ranges and began to wait out the bird until it flew some distance before shooting. A great ploy on open field pheasant, but impossible on woodcock or grouse. Frequently I came home with an empty game bag.

After much thought, I decided to pattern several of my guns at 15 yards and 30, typical upland ranges. I found the diameter of various patterns in a 30-inch circle at 15 yards to be 10 inches for full; 12 to 13 for modified; 16 inches for improved cylinder; and 25 to 28 for the pure cylinder-bored Remington 1100 skeet gun.

Moving back to 30 yards, I found the cylinder bore still had 55 percent of the shot in a 30-inch circle, compared to 42 percent when using the unprotected shells.

How does the 55 percent pattern compare to the other borings? A modified choke is supposed to deliver between 45 and 55 percent at 40 yards. Modified is suggested by most arms companies to be the ideal choke for upland game. Hence, with the cylinder bore, you get the ideal modified at true upland distances.

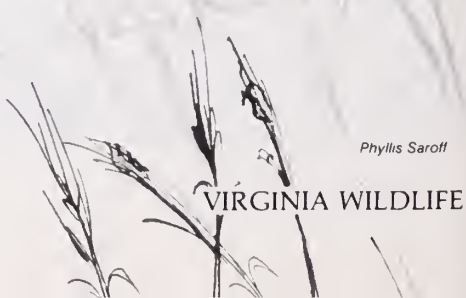
My first day afield with the cylinder bored gun netted me four quail, two rabbit, and two cock pheasant. Since I usedfour quail, two rabbit, and two cock pheasant. Since I used only 10 Winchester low base 7½-trap loads, this was not bad. My two misses were at a pheasant that had taken flight about 20 yards away and was at least 35 yards away—well out of range with the cylinder bore—by the time I fired. Interestingly, I felt my hasty shooting at the quail was way off target, yet the birds were brought to bag at ranges of less than 15 yards.

Here, I would like to point out that 30 yards is really much farther than most people believe. In fact, while we patterned the guns at a measured 30 yards, a knowledgeable shooter passed by and remarked that we were just wasting our ammunition by using a skeet gun at 45 yards: most shooters don't realize how far 30 yards really is and they equip themselves with a too tightly-choked gun for their apparent long shots—in reality, often less than 30 yards. That gives us a lot of leeway when using the cylinder bore to advantage.

The cylinder bore is definitely deadly on any upland game out to 30 yards when using shot-protected shells. Thirty yards is the maximum distance at which upland game is shot, and one would be handicapped by using any choke tighter than the cylinder bore using modern shot-protected shells.

How do you go about buying a cylinder choke or having one installed? You can lop off a few inches from your present barrel, or for 10 to 15 dollars, a gunsmith can ream out several thousandths of an inch from your present tight choke to a cylinder bore. If you own an auto or pump you might invest in a cylinder-bored skeet barrel, which in most cases gives you the added versatility of shooting skeet, upland game, and even slugs for deer.

The true cylinder bore, although denied its due in the days of unprotected shot shells, has proven to be just the ticket for upland shooting with the modern protected shells. I hope never to be afield without at least one cylinder boring in my gun. □



Phyllis Saroff

The Canebrake Rattlesnake

This beautiful and rare creature is being threatened by fear and ignorance.

by James Bonavita

When the first English settlers arrived on the shores of Virginia in the early 1600's, the canebrake was the first rattlesnake any European had seen. It must have been an exciting—and frightening—discovery, one that conjured tales of the fearsome creatures that awaited the colonists. Now, almost 400 years later, the canebrake is quite rare in Virginia, a victim of that same fear, of the ignorance that so many people have of snakes in general, and of declining habitat.

Actually a subspecies of the smaller and more retiring timber rattlesnake, the canebrake grows larger than any other rattlesnake except the diamondback, and prefers swamps and lowlands where the cane *Arundinaria* abounds, hence its name, canebrake. It feeds on rats, small rabbits and other rodents, resulting in obvious benefits to farmers. It averages five feet in length, although it has been known to grow over six feet long.

Baby canebrakes are born alive, like all rattlesnakes, and are 11-16 inches at birth. Armed with sharp "retractile" fangs and a supply of venom at birth, the newborns are capable of killing prey and fending for themselves. Venom of the newborn rattlesnakes is about three times as concentrated as that of adults, but reaches normal toxicity within a year. Because of its smaller quantity, the bite of a baby rattler is not as serious as one from its adult counterpart. The lethal dose for an adult human is approximately 75 milligrams, and since an adult canebrake yields a supply of 250 milligrams or more, a bite from a large snake is potentially lethal, though not necessarily so. One of the few recorded canebrake bites in Virginia occurred on May 6, 1971 when Larry Bobbitt, a herpetologist, was bitten while hunting near the Triple R Ranch in rural Chesapeake. Bitten on the left hand by a nervous five-footer, Bobbitt required 11 days of hospitalization, four of which were in intensive care, and a large supply of polyvalent antivenin. Snakehunting, always potentially hazardous, should not be attempted alone or by amateurs. Even so, more people die annually in the United States from bee stings and lightning than from venomous snake bites.

The canebrake is classed as a pit viper because it has two small "heat sensing pits" located between its eyes and nostrils which allow it to strike at night at warm blooded prey without the benefit of light.

My familiarity with snakes began at age three when I began keeping non-poisonous varieties on my back porch. I can remember my father bringing home freshly killed copperheads and canebrakes to show me. Never one to fear animals, venomous or otherwise, I began stalking these pit vipers on the fringes of the Dismal Swamp within a few years. And after capturing, keeping and handling most of the 65 species of rattlesnakes in existence, I count the canebrake as one of my favorites. The Virginia examples tend to have a beautiful greenish color between the scale rows.

In all my experience in hunting and handling snakes, specifically these rattlers, I have yet to see an "aggressive" canebrake. The canebrake is noted for standing its ground when disturbed; it seldom rattles unless greatly annoyed. The rattle is an evolutionary advantage indigenous to rattlesnakes, but they are totally unaware of it, being deaf to all airborne sounds. It undoubtedly accounts for their efficient survival in prehistoric America where a majority of the animals roaming the plains were hoofed and a misplaced step could be fatal to a snake. His "warning" is not intentional and actually only sounds off when the snake is nervous. Many non-poisonous snakes such as the kingsnake and the blacksnake will also vibrate their tails when frightened, and in dry leaves, the sound of this movement greatly resembles the buzz of a rattler. The rattle is a string of loosely connected segments which vibrate against each other to produce the sound, and the rattlesnake does it 100 times per second. Contrary to popular belief, one cannot determine a snake's age by the size of its rattle or the number of the rattle's segments, because a new one is formed each time the snake sheds its skin, something which occurs between one and five times each year, sometimes even more often. Segments are often broken off during shedding or rough handling, and are even eaten by woodrats while the snake hibernates.

Distribution of the canebrake rattlesnake in Virginia.

The fear that human beings have for this creature, and their accompanying hatred for it, are perhaps the canebrake's greatest enemies, but these feelings are not instinctive.

The habitat of the canebrake in Virginia is limited to the Tidewater area. Eugene Woolridge

Experiments by psychologists have proven that infants have no fear of snakes (or any other animal, for that matter) until the age of two years. This fear is learned, taught by well-meaning but often uninformed parents, and it is certainly reinforced by Hollywood productions. Oddly, snakes, even deadly poisonous varieties, are revered and tolerated within close proximity of living quarters in many countries. But in this country, I have actually seen automobiles swerve across double yellow lines to hit a snake, as if the reptile posed some threat to a 4,000-pound machine. And once, while hunting with Larry Bobbitt in North Carolina for canebrakes, we watched in horror as a car some 1,000 feet in front of us on a dirt road stopped and the driver got out and dispatched a beautiful four-foot snake with a tire iron. The snake was still twitching when we reached it, and disgusted, we reflected on the fact that it had been killed 20 miles from the nearest dwelling, posing no danger to anyone.

The canebrake's numbers have declined dramatically in Virginia in recent years. I can remember just five or six years ago being able to find one or two on any good warm night in Chesapeake or rural Virginia Beach, but now I can hunt an entire season without seeing one (unless it has tire tracks across it). For every one live example that is found, three more dead ones are usually encountered. Newspaper photographs of slaughtered specimens held by grinning hunters or landowners are fairly common. Tidewater Virginia is the northern limit of the canebrake's range. Virginia has a fairly unique situation in that the canebrake, a subspecies of the timber rattlesnake, is distinct, and separated geographically, from the timber rattler. This condition does not exist to this extent in the lower parts of this species' range. Although it is not classified as an endangered species, its range in Virginia is restricted and its population density low, so this snake has "special concern" status. This means that it could easily become endangered or threatened by continuing habitat loss and wanton slaughtering. The canebrake may only survive in memory and preserved collections in future years, and the Commonwealth shall lose a time honored veteran of the forests. □

Jimmi Bonavita, after several years as a police officer in Virginia Beach, joined the Commission of Game and Inland Fisheries as a game warden last year.

Fishery Research

The Cooperative Way

Since 1965, Virginia Tech has been working with the Game Commission and Fish and Wildlife Service to manage Virginia's fishery resource.

by Garland B. Pardue

Electrofishing is frequently used to capture fish in research projects (below). Drift nets effectively capture insects used as food by many species (right).

One of the least known natural resource programs in Virginia may be the Virginia cooperative fishery research unit. Consisting basically of two scientists, it is part of the department of fisheries and wildlife sciences, of the school of forestry and wildlife resources at Virginia Tech. The unit was established in 1965 by Tech, the Commission of Game and Inland Fisheries, and the U.S Fish and Wildlife Service. The unit conducts research, trains graduate students, and conducts extension activities for the state, the university, and the Fish and Wildlife Service.

There are now 26 cooperative fishery research units in as many states. Each is staffed by a leader and assistant leader who also teach at the university. Supervision of the unit's overall direction comes from a coordinating committee. Virginia's committee includes Jack Hoffman, chief of the Game Commission's fish division; John Hosner, director of the school of forestry and wildlife resources at Virginia Tech; and Bernard Griswold, supervisor of the cooperative fishery research units of the Fish and Wildlife Service.

Research in aquatic environments has been and continues to be a major function of the Virginia fishery unit's program. Specific projects have been diverse, depending on the expertise of unit staff, but have always been oriented toward solving important management problems, including evaluation of the effects of strip mines on stream ecology, of reservoir pumped storage on fish communities, of debris removal

Cooperative Fishery Research Unit

on trout populations, of stream channelization on stream ecology, and of chemical treatments with herbicides on aquatic environments. While these projects have emphasized man's effect on aquatic communities, others have been directed at specific components within an ecosystem, such as life history studies, specific sport fisheries, expenditures of Virginia fishermen, and effects of sampling gear on fish populaton or population estimation. Still other projects have described fish population response to stocking hatchery fish or to the addition of habitat improvement structures to streams and reservoirs.

Research is now oriented toward trout stream ecology and endangered species in Virginia. For the last six years, unit staff and students, in cooperation with Virginia Tech's biology department, have intensivley studied a native brook trout stream in Virginia to develop an understanding of energy flow relationships. They have determined the relative importance of *allochthonous* materials (these are materials which are produced on land and fall into the stream, such as falling leaves), water chemistry, primary production, secondary production (aquatic insects), and production of brook trout and non-game fish species. They have also evaluated the life history of brook trout, relative movements of brook trout and non-game species; spawning time, location and importance of first-order tributaries to brook trout spawning; and food habits and competiton between brook trout and

non-game species. A knowledge of these relations should allow an understanding of the dynamics of an undisturbed, relatively unfished native brook trout stream. This understanding should enable accurate evaluations of changes to streams such as these brought about by timber harvest, construction, or other land use practices. In another current study, brook trout production is being evaluated in four streams with differing water quality characteristics. This study will allow an evaluation of the amount of variation in trout production in Virginia and provide a better means of ultimately determining man's effects on such environments.

Brook trout are not the only salmonid species studied in the unit program. One recently completed study on the South Fork of the Holston River evaluated the reproductive biology and annual production of rainbow trout. Such information is useful to trout biologists in determining how many fish can be produced in a section of trout stream, when and where they spawn, and the impact they have on other trout populations such as native brook trout. A current study with rainbow trout involves an evaluation of catchability, survival, growth, and movement of five strains of rainbow trout in fished and unfished Virginia streams. The five strains are genetically different and were produced at the fish genetics laboratory of the Fish and Wildlife Service. A major objective of this work is to determine which specific strain of rainbow trout would provide the greatest return to Virginia's anglers.

Two studies on brown trout are also underway in the unit program: one on the factors influencing the establishment of self-sustaining populations of brown trout in Virginia streams, and one on the factors influencing longitudinal distribution and seasonal movements of brown trout in streams containing brook trout. Such studies are important steps toward a sound evaluation of the effects of management programs on established populations of native brook trout. Virginia's district fisheries biologists work closely with the fishery unit, reviewing, supporting, and evaluating these unit research projects.

Virginia's mussel fauna are among the most diverse in the United States, and the the unit has been studying them. Freshwater mussels are important in many aquatic ecosystems, where they serve as food for both furbearers and waterfowl. They also filter organic material from the water, purifying it and making the recycled material available as food for other invertebrates which, in turn, serve as food for many species of fish. Research on endangered species of mussels began in 1978, when the unit contracted with the Game Commission to obtain basic estimates of population density and distribution for each of the nine endangered species of freshwater mussels found in southwestern Virginia. Research on these mussels has continued since that time and has resulted not only in evaluating the existing populations of endangered mussels, but also in developing laboratory techniques to identify various mussel life history stages and host-fish relations, and in understanding the life histories of several non-endangered but previously little-known freshwater mussels. Four studies on freshwater mussels are underway. One of these concerns the life history of the endangered shiny pigtoe. Few of these mussels remain in Virginia, and lab techniques had to be developed to insure that no deaths resulted from this research. The animals can now be successfully studied and then returned alive to the stream. Once the life history has been determined, plans can be made to preserve and recover the remaining shiny pigtoes. A second study examines the ecological relationship between glochidia (larval mussels) and their fish hosts in the North Fork of the Holston River. To complete their development, larval mussels must spend part of their life attached to the gills and fins of various species of fish. During this period, mussels may be moved about from one place to another in the stream by the host; as adults, they are sedentary and live in the bottom gravel. These relations must be understood in order to determine what factors are responsible for limiting the numbers and distribution of Virginia's mussels. Two additional studies involve determining an accurate way to age mussels and the developing of recovery procedures to facilitate the recovery of populations of endangered mussels. Both these studies have an important role in deciding what the future holds for freshwater mussels, some of Virginia's oldest inhabitants.

Although research plays an important role in the unit program, it is certainly not its only activity. Teaching and graduate student training also play an important part in the overall program. The unit leader and assistant leader teach an average of one graduate-level course each year and are often called upon to direct graduate seminars or to provide guest lectures in other courses. In the 16-year history of Virginia's fishery unit, leaders and assistant leaders have taught fishery management, fisheries ecology, advanced fisheries management, international fisheries, marine fisheries, and aquaculture. They routinely participate in the field and laboratory phases of graduate student research. This participation provides formal training unavailable in the classroom and exposes each student to the complement of skills necessary for careers as research biologists, resource managers, and teachers.

Unit members provide public service and technical assistance, sometimes working alone, sometimes with the extension specialist at Virginia Tech. Advice on fisheries management problems important to local landowners, communities, and state and federal agencies is given as time permits. This often requires a site review before suitable solutions can be recommended. The unit also provides long-term technical assistance to various state and federal agencies. Two examples include the development of an Age and Growth Program and a Stream Retrieval Program for the fish division of the Game Commission. In 1976, the unit began to provide suitable aging techniques and analysis of scales collected by state fishery biologists. A computer program has been developed and approximately 13,000 scales collected statewide are analyzed each year by unit personnel. The stream retrieval program was developed in 1979 to process and retrieve information collected on 800 trout streams by Virginia fishery biologists. Unit personnel or their colleagues now can quickly retrieve that information by using a computer program. The program can easily be expanded to include information on warmwater streams and reservoirs when data on these waters are collected.

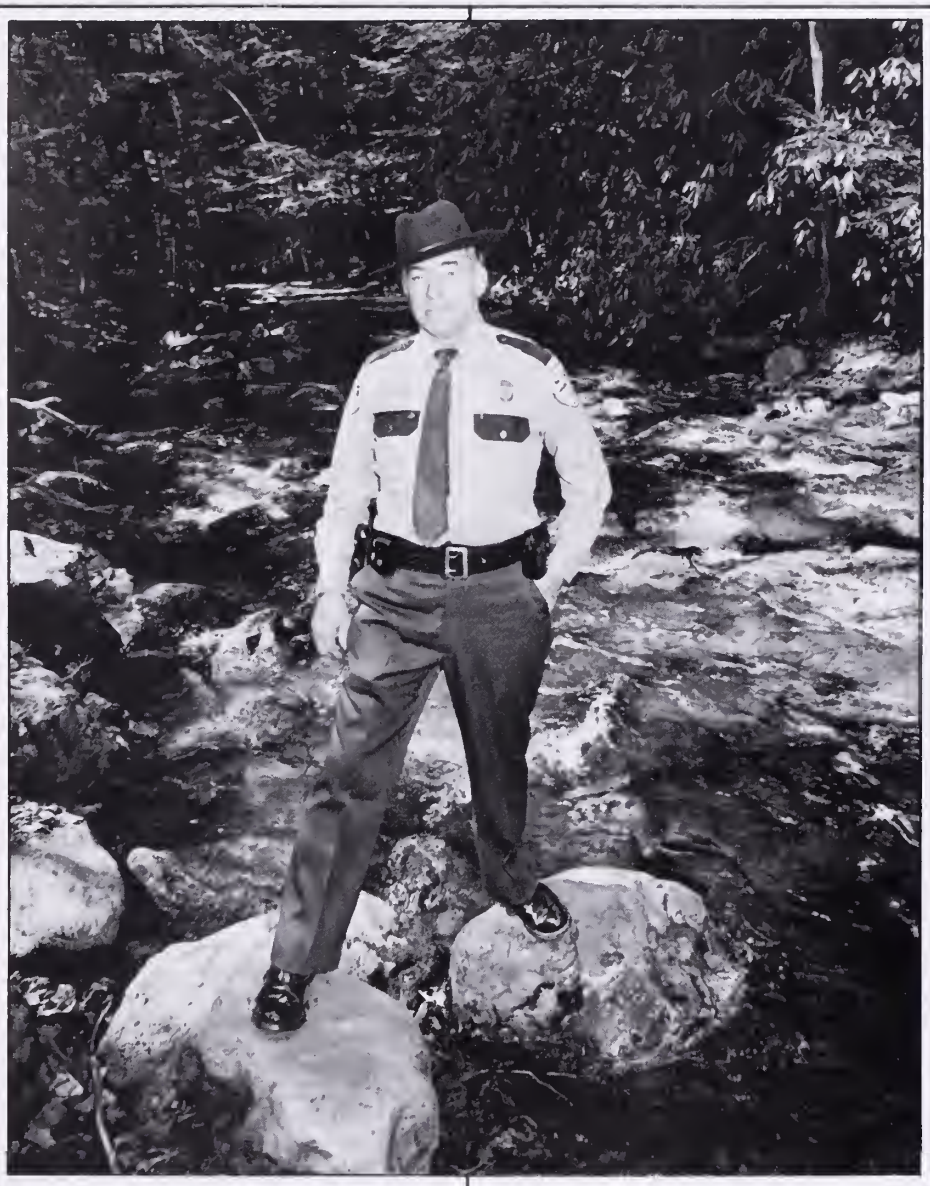
The Virginia cooperative fishery research unit provides interagency contact and coordination. It functions as a research component of both state and federal governments for solutions to important resource problems. It also provides two additional teaching and research members of the university faculty, to educate and train graduate students interested in natural resource management. The unit has been and continues to be a dynamic facility responsive to the continually changing needs of each cooperator and of the resource. □

Garland P. Pardue is the unit leader of Virginia's cooperative fishery research unit.

Personalities

by Francis N. Satterlee

Forest Hanks



Forest Hanks was born in Raleigh County, West Virginia, the son of a coal miner. Forest's father was also a blacksmith, farmer and part-time gunsmith. The Hanks family lived in Beaver, near Beckley.

Some of Forest's earliest memories were of the times that he would take a lunch to his father at the mine. He would carry it ever-so-carefully to the mouth of what, to him, was a dark and foreboding abyss, wait until his father appeared apparition-like from the depths of the mine, and hand him his noon repast.

This frequent experience at his then-tender age caused Forest to make a fateful decision: mines and mining were not for him. He would choose the outdoors, fresh air, the sun and the sky instead.

In spite of his occupation, his father was an avid sportsman who hunted, fished and taught Forest and his brothers most of what they learned about the woods and wildlife. But it was Forest's mother who first took him into the woods to hunt squirrels. He was only about 11 years old when these outings began and he recalls that they would go into the woods with him carrying an unloaded single-shot .22 calibre rifle. Upon arriving in an area where there were squirrels, his mother would supervise the loading, using the same routine each time. She would reach into her apron pocket, retrieve one cartridge, and assist her son in loading the rifle. This meticulous training had a lasting impression on him.

He attended Woodrow Wilson School in Beckley. During his growing-up summers he worked on the family farm, helped out on neighboring farms in a sort of mutual aid program, and even had time to learn blacksmithing from his father. He shoed his first horse when he was 15 years old.

In 1937, Forest joined the Civilian Conservation Corps. He did a multitude of jobs including timber surveys, blacksmithing and was also able to complete his schooling. Late in 1940 he was hired by the Glen L. Martin Aircraft Company in Baltimore, Maryland. His job involved instrument assembly on such famous aircraft as the B-26 Marauder, PBY amphibian and later the A-26 Attack Bomber. Another of his jobs at the Martin plant saw him installing gun turrets on the aircraft.

Forest left the Martin Company in 1945 and joined the U.S. Army. He was assigned to the 3rd Armored Division in Texas and was preparing for overseas deployment when the atom bomb was dropped.

He was discharged in January 1946 and went to work for West Virginia Pulp and Paper Company. Five years later, he became a Virginia Game Warden, and was assigned to Alleghany County.

The most rewarding aspect of his work with the Commission has been being part of the long-term effort which has brought about great increases in game and fish populations, sustained yields of these renewable resources, and the re-introduction of the wild turkey to Virginia. He is especially proud of the improved fish stocking operations throughout the state which have resulted in greater enjoyment for anglers. He is proud also and humbly grateful to his mother who so long ago instilled in him the sense of safety and oneness with nature that has guided him throughout this life. She, now 87 years young, lives in Maple Fork, West Virginia, and still does her own gardening. □

Forest Hanks died suddenly on the morning of May 18, just as this issue of the magazine went to press.

Growing Up Outdoors

by Sarah Bartenstein

Take A Kid Fishing

Even though "Take a Kid Fishing Week" is June 7-13, these kids got an earlier start. The Rapidan Chapter of a group called Trout Unlimited sponsored "Kids' Day" on the Rose River (near Syria, Virginia) on April 3. These kids don't seem bothered by the rain—they look like they're having a great time. Many of them caught fish, too—and they did it all by themselves. One of the rules of "Kids' Day" is that the adults let the kids "do their own thing"—they were allowed to help the young anglers put their lures on their fishing rods, and to unhook the fish, but the rest of the work was up to the kids themselves.

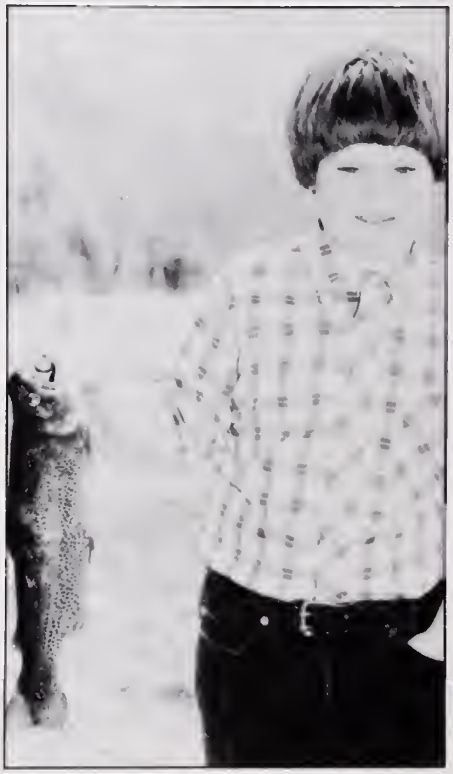
This summer, get one of your parents or an older friend to take you fishing, and see for yourself how much fun fishing is!

A proud—and successful—angler with her dad. Which one of them do you think was more excited?

The rain didn't seem to bother most people.

This little girl is still a bit young to be fishing, so her dad takes over.

Photos by Francis N. Satterlee



Philip Showalter, age 11, of Broadway, Virginia, with the rainbow trout he caught.

Field Notes

edited by Sarah Bartenstein

New Homes for Wildlife

by Lt. Donald P. Wirt
Education Supervisor
Law Enforcement Division

The natural resource management class of Holston High School in Damascus undertook a project in 1979 to make new homes for wildlife, mainly building squirrel dens. These dens are made out of worn-out, discarded automobile tires. They are placed on a tree trunk, slightly downward to prevent rain from entering the den. Tire dens have several advantages over other housing structures. They are bulletproof; they never rot; and they are easy and inexpensive to build. Also, tire dens can easily replace natural habitat as more trees are being harvested. Two workers who are familiar with the design can produce about seven or eight dens per hour.

Eighty-eight dens were built originally and placed in small groups throughout Washington County. Since they were originally put in place, the natural resource management class of Holston High School, under the direction of their instructor, Warren Wells, has conducted periodic surveys of 25 of the dens. In October 1980, 64 percent of the test site dens were occupied; in June 1981, 76 percent were occupied; and in November 1981, 80 percent were occupied. Most of the dens housed grey squirrels, fox squirrels, flying squirrels, and some screech owls.

Directions for constructing the tire dens are as follows:

1. Obtain a standard automobile tire that has been discarded. It should be either a G-15 or a G-16, if possible. Never use a steel-belted tire.
2. With a heavy cutting tool, cut the bead from both sides of the tire and cut the tire in half.

Take each half and proceed with the following steps:

3. On one end, cut a semi-circle three inches deep and three inches wide. Cut a three-inch triangle from each corner of the sidewall of the tire next to the semi-circle.
4. Cut three-inch flaps into each sidewall about one-third of the distance from the semi-circle to the other end of the tire.
5. Fold short end of tire into the long end.
6. Drill holes into the tire at strategic positions. Wire the tire together in this folded position.
7. Drill holes in each side of the tire. Insert a heavy wire into these holes to hang the house.

For information on beginning your own project, contact Warren Wells at Holston High School, Damascus, Virginia 24236. □

Leonard Lee Rue

Game Warden Hits 10,000 Mark

Game Warden Charles Chappell of Carroll County presents a certificate of merit to his 10,000th hunter safety student, Chad Golding, age 12. Chad is the son of Mr. and Mrs. Roger Golding of Hillsville. Photo courtesy of the Galax Gazette.

It Appears to Me

by Curly

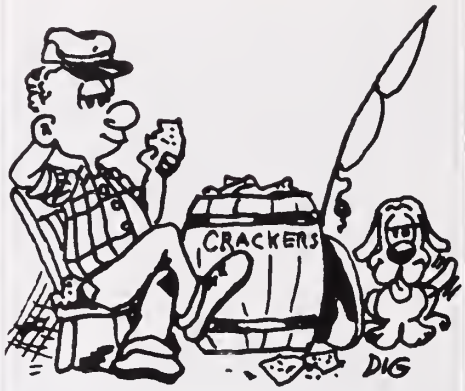
. . . A PERSON OUGHT TO HAVE ONE

I reckon it is just about time to tell you about the latest offerings from our friends down at the Virginia Department of Agriculture and Consumer Services. These are the good folks that continually come up with all kinds of good stuff that all of us ought to have. Take for example the publication which became available in April "Where to Buy Fresh Virginia Lamb". . . and the one which was hot off the press just last month, "1982 Virginia Winery Guide." Both of these brochures are available free by requesting them from the address listed below. However, before you send off for these goodies, you might like to know that, in the planning stage, there are other brochures and pamphlets which also may be of interest. Due to be printed later this summer are: "Pick Your Own Peaches and Grapes," "Pick Your Own Apples," "Firewood Directory," and "Choose and Cut Christmas Trees." Also planned for subsequent publication this year is an updated Directory of Custom Slaughter and Processing Houses and a Farmers Market Directory.

The best way to obtain these goodies is to send a business-size (or larger) envelope to which you have affixed a stamp and your name and address (for each brochure requested) with your request to: VDACS, Division of Markets, P.O. Box 1163, Richmond, Virginia 23209.

Thought that you might like to know that, for those of you with a special interest in wetlands, the Department of Forestry and Wildlife Management at the University of Massachusetts recently produced a neat booklet entitled "The Value of Wetlands to Man and Wildlife." Copies are available from the Cooperative Extension Service, University of Massachusetts, Amherst, Massachusetts 01003.

Now that we are about to be "knee deep in June," you might just want to take advantage of a rather unique publication which itself is free and contains



listings of other free or "nearly-so" items. I refer to the relatively new "Family Camping Vehicles Publication Catalog" which has been produced by the Recreation Vehicle Industry Association, or RVIA. The listing of the various publications covers topics ranging from potential RV business opportunities, buying, using and maintaining recreational vehicles, pertinent laws, standards and safety. Some of the titles are: "Energy Saving Tips While RVing," "Rules of the Road," "RV Camping Guide" and "RV Repair and Maintenance Manual." One of the most popular of the publications, "Living in Style—The RV Way" costs just $1.00 as an introductory offer. To obtain a copy of the free "Family Camping Vehicles Publications Catalog," send a self-addressed (stamped) legal size envelope to: RIVA, Box 204, Dept. LIS, 14650 Lee Road, Chantilly, Virginia 22021.

And here is something special for all of our lady readership. . .the United States Department of Health and Human Services has produced a free booklet which should be in your files. "A Woman's Guide To Social Security" is free by sending a postcard request to Consumer Information Center, Department 513K, Pueblo, Colorado 81009.

. . . FOR YOUR BOOKSHELF

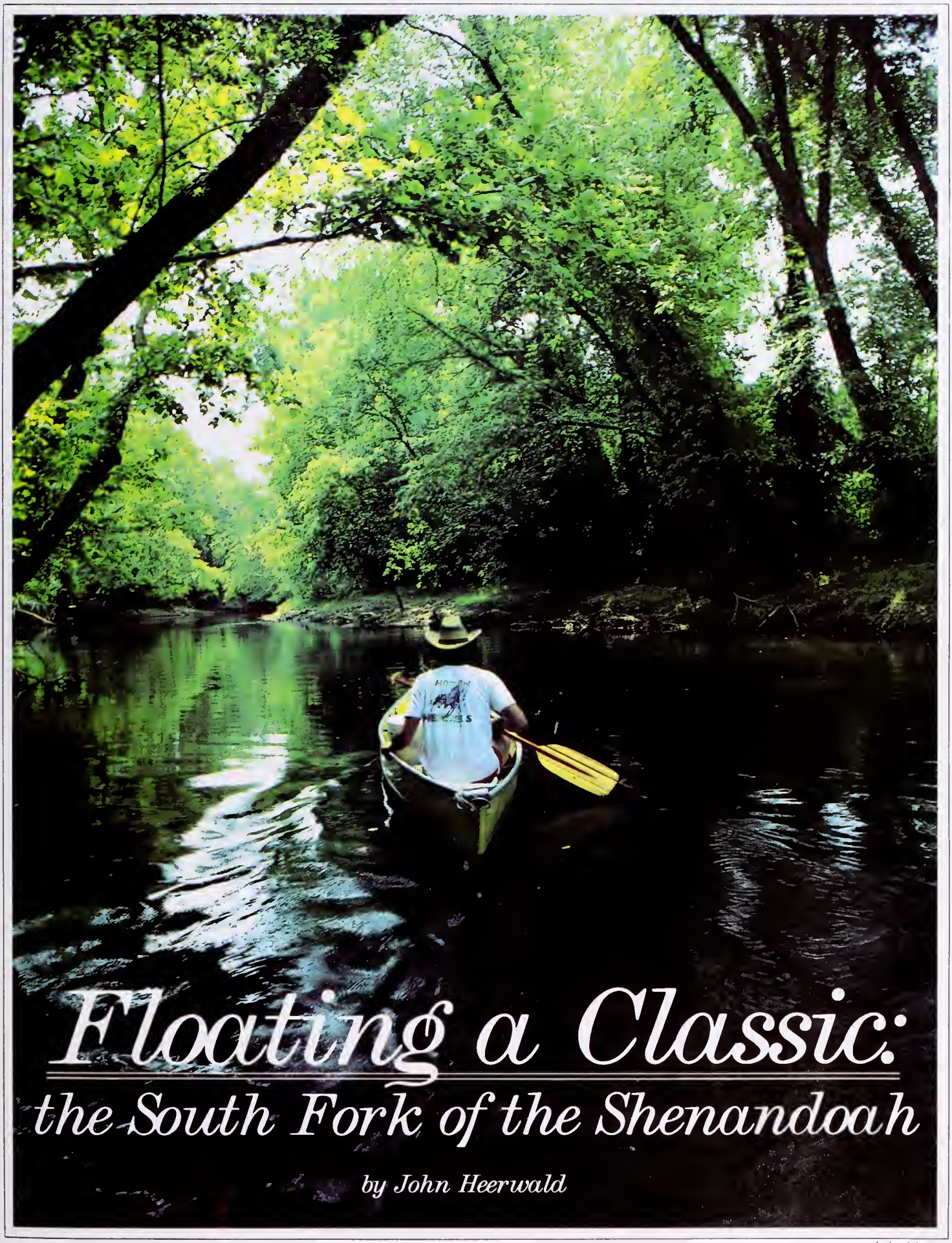
With the current, and mounting, interest in all kinds of endangered critters, habitats and even us, it is most timely that the U.S Fish and Wildlife Service saw fit to produce a brochure on the subject. "Endangered Means There's Still Time" is an illustrated 32-pager which covers this topic extremely well. Touching on the tenuous success of brown pelican, Key deer and other species' comeback, it delves into the "iffy" status of others and presents an understandable explanation of the Endangered Species Act. Priced at only $2.50 it is a goodie and available from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402 (Stock No. 024-010-00526).

This next item is something that all of us have needed for years! Although we have done our best to be sportsmen in the truest sense of the word, defended our actions scientifically in response to the emotionally generated attacks by the opposition and, for the most part have been successful. . .we haven't been listening to each other. Fortunately something has been done to correct the situation. The Safari Club International Conservation Fund (SCICF) has a stunning and long-needed publication entitled simply, and effectively, "Profile." The booklet contains the official position of 23 well-known conservation organizations on the issue of hunting and it is "the first step to be taken in the development of a more tolerant attitude toward and appreciation of the hunting issue among organizations and citizens dedicated to the conservation of our natural resources," according to Hector Kitscha, President of SCICF.

This "Profile" is a must for individuals and organizations alike and it's available for just $1.00 from Safari Club International Conservation Fund, Suite 1680, 5151 Broadway, Tucson, Arizona 85711.

. . . AND THEN

"Some men never seem to grow old. Always active in thought, always ready to adopt new ideas, they are never chargeable with fogyism. Satisfied, yet ever dissatisified, settled, yet ever unsettled, they always enjoy the best of what is, and are the first to find the best of what will be." William Shakespeare.



Floating a Classic: the South Fork of the Shenandoah

by John Heerwald

Archie Johnson

(Below) Floating the Shenandoah River has its rewards—how about a stringer of smallmouths? (Right) vistas like these are common on this classic river.

Overnight gear secured, anticipation at a peak, your 17-foot canoe glides silently into the clear green limestone waters of the South Fork. Three days and 27 miles of action-packed smallmouth angling and incomparable Blue Ridge scenery lie between a put-in at Bealer's Ferry and the landing at the mouth of Gooney Run, west of Karo.

The beauty of the Shenandoah is legendary not only in Virginia, but throughout the country. The Blue Ridge Mountains serve as a constant backdrop to the South Fork as it winds its way lazily through the narrow, rolling Valley between Shenandoah National Park and Massanutten Mountain. Scenery along the banks alternates pleasantly between steep, rugged mountainsides, flat to gently rolling pastures and cropland, and imposing verticle limestone bluffs. The mood or character of the river changes with these backdrops, varying from wild and remote in some stretches, to completely pastoral in others. But unquestionably, the overall feeling is one of a river in harmony with its surroundings.

The history of the South Fork is replete with Indian massacres, iron mining and smelting, fierce and protracted Civil War campaigns, countless milling enterprises and colorful river-borne commerce. Place names such as Goods Falls, Indian Grave Ridge, Hazard Mill, Burners Bottom, and Indian Hollow Bridge kindle the imagination and the curiosity of area visitors. A little bit of research on Valley history can add immeasurably to the enjoyment of a float trip on the Shenandoah. Good thumbnail sketches of the colorful history associated with the various stretches of the South Fork may be found in *The Shenandoah River: An Illustrated Canoe Log* by Matacia and Cecil.

Sport fishing on the extremely fertile South Fork is among the best in the Commonwealth. In fact, it is probably one of the half dozen most popular smallmouth streams in the East.

Shenandoah River South Fork

Shenandoah Canoe Outfitters (South Fork)

340 Outfitters, Route 1, Box 248-E Front Royal, Virginia 22630, (703) 635-5440

Downriver Canoe Company, Route 1, Box 256-A, Bentonville, Virginia 22610, (703) 635-5526

Front Royal Canoe Company, Three Springs Camp Ground, Front Royal, Virginia 22630, (703) 635-2741

Shenandoah River Outfitters, RFD 3, Luray, Virginia 22835, (703) 743-4159

John Heerwald

Although the Shenandoah produces fewer citation (four pounds and over) bass than the James, it compensates with a heavy population of 10- to 14-inchers.

Channel catfish are also found in excellent numbers on the South Fork and are much sought by local fishermen.

In terms of accessibility, scenery and fishing, this is not only the best stretch of the South Fork, it is, in the author's opinion, the best of the entire Shenandoah River System in Virginia. Because the river in this particular area is so acessible, it is possible to arrange your float to fit both your time frame and specific trip purpose. For example, first-time paddlers or those pressed for time and able to spend only a few hours on the river, can arrange a trip from Hazard Mill to Bentonville, a distance of aobut three miles. There are any number of possibilities for those wishing to spend more time on the river. If you are lacking in experience or are in need of rental equipment, there are a number of commercial canoe outfitters in the area able to provide gear, car shuttle and trip planning advice. (A list of outfitters along this section of the South Fork has been included with the map above). If possible, it is a good idea to make arrangements ahead of time in order to avoid last minute snags or disappointments.

A float from Bealer's Ferry to Karo begins on an atypical note: the entire first mile and a quarter consists of a flat, unbroken pool, a condition that occurs less than a half-dozen times in the entire 27 miles. Just beyond mile one, the first several riffles are encountered, setting the stage for Goods Falls which lies just around the bend. Though the name sounds ominous, the Falls actually consist of approximately a mile of stairstep ledges which completely span the river, requiring fairly extensive maneuvering in order to locate and negotiate notches with sufficient water to carry you over the ledges. During late summer when the water is low, this might best be described as "hunt and peck" canoeing.

State Route 684 terminates at the river on the right side near the site of Good's Mill at the base of the "Falls." The next point at which the river is accessible is where Route 663 parallels the right bank at mile seven.

Approximately a mile and a half of flatwater lies between Goods Mill and the next set of riffles, at which point you will start into a three-mile meander. Although not really spectacular, this stretch is classic South Fork, with beautiful mountain vistas, reaches of gently rolling pasture, a group of small islands and eight or 10 ledges.

As you approach the long horseshoe bend at mile eight you will be greeted by a gradually increasing roar. A high railroad trestle on river right spans Dry Run just above its confluence with the river. Immediately below the gravel bar which has formed at the mouth of this creek, you will encounter Compton Rapids, the South Fork's only claim to whitewater fame. Actually, the roar of this rapid is amplified by a massive limestone cliff on the right, making its bark worse than its class II bite. The drop is best run straight on and slightly right of center at normal water levels. During low water it becomes somewhat more demanding, as you are forced to enter on the left and traverse it diagonally.

Some of the most idyllic campsites on the entire South Fork are located on the sandy, elevated floodplain at the foot of Compton Rapid, on river left. Backed by heavily wooded Indian Grave Ridge, with the face of a sheer 175-foot cliff reflected on the river surface and the muffled roar of the rapid in the background, it is hard to imagine a more scenic and enjoyable riverside camp. Although the land is owned by the Forest Service, it is maintianed by those who use it. Please respect the rights of others and carry out all that you carry in. The long deep pool which fronts these sites is an excellent "catfish hole" almost certain to produce some lively action for the angler who can resist the sleeping bag after a day on the river.

A mile beyond Compton is a large island with the main river channel passing to the right. There are several excellent campsites about mid-island. However, there are few high spots on the island and any sudden increase in water level could put you closer to the elements than you care to be. The smallmouth feed actively in the swift, waist-deep channel off the island, at both dusk and dawn. It is an excellent place to wade in and work with a fly rod or top water spinfishing gear.

Just below this island is a series of riffles and ledges and a steep vertical bank on the left. The deeper water around the rocks along the foot of this bluff is excellent smallmouth territory and the current is generally slow enough to permit you to fish it thoroughly.

A close look at the last riffle just above the bend at 9.5 will reveal its very distinctive V-shape. This is obviously a man-made structure and in all likelihood is the remnants of an Indian fish wier. Similar structures are found at numerous other places on the Shenandoah as well as the Potomac, Rappahannock, New, Clinch, Powell, and others.

Another informal access point exists on the right bank at Burner's Ford. The last 200 feet of the road down to the river is little more than a narrow path and is on a very steep grade. If you have any doubts about the ability of your vehicle, play it safe and carry your equipment to or from the river.

Just around the sharp left-hand bend at Overall, the river cuts up against a rugged, almost vertical mountainside. The next mile contains an Indian fish dam and several riffles and ledges. Shortly after the river leaves the bluff and meanders through a broad right-hand bend, the flood plain on river left opens up and you will notice another canoe-in camping area. This site is a part of the U.S. Forest Service Hazard Mill Recreation Area which borders the river between mile 13.5 and 15.5. A drive-in campground, picnic area and boating access site is also provided at Hazard Mill. According to Matacia in his *Illustrated Canoe Log*, some of the stone remnants of Hazard Mill can still be found along the mill race which flows between the left bank and the island at mile 16.5.

Below Hazard Mill, the South Fork winds through about three miles of pastoral farmland. The downstream view from the vicinity of mile 16.5, with its broad rolling pastures framed in a mountain setting, ranks among the best on the river. Obviously the beauty of this particular area has not gone unnoticed. On weekends and holidays during the peak summer season, these lowgrounds are dotted by large tents, campers and motorhomes.

Indian Hollow Bridge at Bentonville is actually a low-water structure that will necessitate a short portage around the left end if you intend to continue your trip. The Game Commission landing here has historically been a more popular point at which to end a trip on the South Fork than to begin one, particularly during the late summer and fall when flows are likely to be low. The non-fisherman may wish to avoid the nine miles between Bentonville and Karo during low flow, unless he relishes the idea of bumping and scraping his way through the highest per-mile concentration of ledges on the entire South Fork. A serious angler, on the other hand, will delight in what is undoubtedly some of the best river smallmouth fishing in the Old Dominion. This short stretch easily merits two days of attention from the methodical angler. However, it can be floated in a single day.

From Bentonville to mile 19.5, the river is virtually identical in character to the preceding six or seven miles. But, at this point, the floodplain narrows and changes from pasture to hardwood forest and the riverwide ledges become almost continous, providing ideal smallmouth habitat. Unfortunately, the current is too swift in many instances to permit anything more than a hurried cast into an inviting eddie. For this reason, a small anchor will prove to be a valuable commodity to the fisherman. If you don't have an anchor, however, it is generally possible to hang-up on a ledge with little to no effort, affording ample opportunity to devote your full attention to a promising riffle or pool, before prying loose and heading on downstream.

From mile 19.5 to mile 21.5, the river bounces from one bluff to the next as it winds toward a three-mile loop around "The Point." With the exception of about a half-mile between 22.5 and 23, this loop is virtually continous ledges and riffles. During the summer, this stretch is dotted with hundreds of emerald green water weed "islands." These "islands" not only enhance the scenery, but provide excellent cover for bass and bluegill. A deer hair bug or small popper laid at the edge of one of these weedbeds will more often than not produce a savage strike. Catfishing is also excellent in this area. Nightcrawlers, crawdads, madtoms or helgrammites drifted along the bottom in the eddies can provide plenty of action and result in some excellent table fare.

The two-mile-long downstream side of The Point provides some of the most dramatic and sweeping vistas in the South Fork Valley. All too often, we are preoccupied with the ever-changing view ahead, anticipating what lies around the next shoulder. Here, it's worth the effort because the 1,700-foot near vertical face of Massannutten Mountain makes an unforgettable backdrop for the upstream vista from McCoy's Ford.

In the final mile-and-a-half to Karo Landing, the ledges which characterize so much of the Shenandoah all but disappear, and the three-quarter-mile flat water paddle above the takeout seems to take forever. But if the wind isn't blowing you back upstream, it does provide an opportunity to reflect on your trip down a stretch that must be one of the most pleasant east of the Mississippi. □

John Heerwald is an outdoor recreation planner with the Commission of Outdoor Recreation.

Outdoor Notebook

edited by Mel White

Training For New Game Wardens

Shown taking a break during this year's game warden school are (l to r) Major Lewis Brandt, Major Gerald Simmons and chief of law enforcement, Colonel John McLaughlin. The game warden school held in Richmond is part of a three-phase initial training program for new wardens. After the Richmond school, the recruits spend a week in the field and then report to the Criminal Justice Service Commission Basic School in Boydton, Virginia for training there. New wardens joining the force this year include: James Anders of Galax, Steven Bullman of Staunton, James Christian of Bristol, Phillip Coltrane of Staunton, Ben Conger of Richmond, Joseph Dedrick of Fredericksburg, Robert George of Galax, Michael Humphries of Lexington, Virgil Hurst of Wytheville, James Ignowski of Riverdale, Maryland, Benjamin Lewis of Lancaster, James Printz of Rileyville, Jess Sager of Waynesboro, Phillip Townley of Pearisburg and Laurence Wensel, Jr. of Galax. □

Beware of Boats Not For Sport

This is the time of year when many of our thoughts turn to boats and boating. If you are planning to purchase a new boat, the U.S. Coast Guard urges caution when purchasing boats designated "For Commerical Use Only." There has been a recent increase in the sale of these boats and the concern is that potential buyers may not know that they do not have the same requirements for safety as do recreational boats. There are fewer safety regulations for boats made for commercial use only. Boats of this type are not subject to regulations governing recreational boats and, as such, not required to stay afloat when swamped, level or otherwise. In other words, if swamped, a boat of this type will usually sink. Capacity information is also not required for these boats, nor is safety protection for the fuel and electrical systems.

The Coast Guard wants everyone to know that boats manufactured "For Commerical Use Only" do not have the same requirements that are taken for granted for recreational boats. □

Reward Offered For Catching Fish Hogs

If you have information about persons who have taken more than the legal limit of striped bass in Virginia, you may be in line for a reward. The Virginia Wildlife Federation, a private, non-profit conservation organization, is offering a reward of $100 for information leading to the arrest and conviction of persons illegally catching or exceeding the limit on striped bass in the Commonwealth. If you have such information, you can contact the Virginia Wildlife Federation at P.O. Box 7313, Portsmouth, Virginia 23707. You may also report violations to your local game warden or contact the Game Commission in Richmond, 4010 West Broad St., 23230, or by phone at (804) 257-1000. Informants contacting the Commission or the Wildlife Federation will remain anonymous. □

Study Finds Problems With Environmentalists

A special report to the Republican Study Committee warns members to guard against "the specter of environmentalism" which "haunts America by threatening to inhibit resource development and economic growth."

The Republican Study Committee is a conservative caucus of 152 of the 192 Republican members of the House. California Rep. Robert E. Badham, who became chairman of the committee about two weeks before the report was issued in mid-February, said he did not review the document before it was mailed.

Tim Peckinpaugh, a committee staff member, authored the report. In it, he calls the Sierra Club a "crypto-political outfit," identifies Robert Redford as an "arch-environmentalist actor," and accuses environmentalists of having a "hidden liberal agenda." He notes that memberships in major environmetal groups are at all-time highs, with most of the "environmental extremists" being recruited from the "affluent 'wine and cheese belt.'" His report claims "environmentalists are liberal and self-motivated and intent on preserving their priviledged social status."

Peckinpaugh attributes the effectiveness of environmental organizations to tactics such as "manipulation of the sympathetic press," "manipulation of the courts," "infiltration of academia," and "acquisition of federal funds" through grants and tax exemptions. These instances of public funding "above all others underscore the pervasive spector (sic) of unfettered environmentalism."

It appears the fight will continue between those who would develop everything and those who would keep at least a portion of our country unspoiled and available for the hundreds of thousands of us who like to roam the woods and fish the streams. □

Money Needed For Non-Game Program

According to information received from the Wildlife Management Institute, 17 states are now involved in non-game tax check-off programs. Three states which have recently joined; Indiana, Iowa and New York. Legislation is pending in Virginia's neighbor state, Maryland, and in Georgia, Michigan and Ohio. In Wisconsin, a pending bill is expected to be enacted in the near future.

Virginia's General Assembly passed a law effective July 1, 1981 permitting persons to contribute all or part of any tax refund due them on their 1981 Virginia income tax. Now that taxtime is over for another year, those involved with the non-game program want you to know that you can still help. There's no need to wait 'till it is time to pay taxes again. You can send contributions to the program directly. Funds are needed throughout the year to keep the program going. The non-game funds are used to inventory non-game species, as well as to improve their habitats. It also allows work to continue on the study, protection and eventual return to prosperity of our endangered species.

Contributions may be sent to Non-game Fund, 4010 West Broad Street, P.O. Box 11104, Richmond, Virginia 23230. All contributions are tax-deductible. □

Volunteers Needed To Work On National Forests

Virginia's two national forests, the George Washington and the Jefferson, are looking for summer volunteers to come out and work in the woods. The call for volunteer labor is an effort on the part of the forest service to reduce the cost of operating the forests, without reducing services to the public.

Some of the workers will construct and maintain trails, plant trees and act as research assistants. One of the main jobs for volunteers is as campground hosts, assisting and advising campers who visit the forests. The volunteers also serve as guides, lecturers, clerks and wilderness rangers.

The volunteers, as the name implies, do not receive any pay. However, they do receive legal protection and insurance for work-related injuries. Exceptions do exist in special cases in which workers can be compensated for travel, food and lodging expenses. In some cases, housing is provided for on the forest.

Since the program began in 1972, forest service volunteers have increased seven-fold. Last year, some 16,000 volunteers accomplished work valued at $8.3 million dollars.

Persons interested in volunteer work can contact either the Jefferson National Forest, 210 Franklin Road, Roanoke, Virginia, or the George Washington National Forest, Federal Building, Harrisonburg, Virginia. □

15th Annual Forestry And Wildlife Resources Institute

A research survey on over 400 former FWRI students indicated that the experience of attending the Institute sharpened their interest and understanding about natural resource subject area. Of those completing the questionnaire, 57 percent are now in college or employed in natural resource careers.

Natural resource understandings are important to those not directly related to natural resources. Natural resources are socially important since they are renewable and not exhaustable as are many of our mineral based resources.

Natural resources are personally important when you are choosing a lifetime career. The question could be what are you doing for the next 47 years. That's you average working lifetime.

The Forestry and Wildland Resources Institute is designed to give students an opportunity to explore professional careers in the field of renewable natural resources—forestry, wildlife, fisheries, and outdoor recreation. An introduction to careers in forest products utilization also is covered in the one-week program.

The $125 fee includes tuition, room and board, supervision, insurance and all other costs relating to the administration and conduct of the program.

Topics To Be Reviewed in Class and Field Sessions

Forest Ecology
Wildlife Management
Timber Management
Wildlife Biology
Forest Entomology
Fish Ecology
Fisheries Management
Silviculture
Forestry Engineering
Environmental Planning
Forest Recreation
Forest Products
Trends in Natural Resources
Wood Technology and Wood Sciences s
Environmental Impact Analysis
Trends and Development in Primary and Secondary Wood Conversion
Employment Opportunities in Public Industry and Public Agencies

Time: June 27 - July 3, 1982

Director: W.A. McElfresh, Extension Specialist, 4-H 703/961-5676

Information: School of Forestry and Wildlife Resources, Blacksburg, Virginia 24061.

FWRI 1982

Please send: _____ FWRI Flyers
_____ Application Forms
_____ Scholarship Forms

To: _____
Name

_____

_____
Complete Address

*Please return to above address.

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The MILKWEED

Although revered through the ages for their medicinal properties, milkweeds must be handled with caution.

by Tony Decker

The milkweeds, as the name implies, are noted for their milky juice or latex. As a group, they tend to be robust plants with conspicuous flowers. Nearly everyone is familiar with at least the attractive reddish blooms of the common milkweed, *Asclepius syriaca*.

The milkweeds belong to the family *Asclepiadaceae*. The name is derived from the Greek *Asclepius*, in mythology the god of healing and medicine. The Roman name of this god is *Aesculapius*. From ancient times, some of the milkweeds have been esteemed for their medicinal values. Unfortunately, some are also poisonous.

Largely a western hemisphere group the family has about 150 species native to North and South America, with about 60 in our country, and it is adequately represented in Virginia. Besides their latex, the milkweeds are characterized by generally opposite or whorled leaves, and especially by the usually umbel shaped clusters of flowers in which the five sepals are barely united. The five petals are united at the base and bear upstanding appendages protecting the stamens and pistil, and pollen that is gathered into wax-like or granular masses.

There are some vine-like milkweeds, of which climbing milkweed, *Gonolobus obliquus* and *Gonolobus gonocarpos* are two that are found in Virginia. As one might expect, these climbing milkweeds are usually found on rocky slopes or along borders of thick woods. Their blossoms tend ot be less densely clustered.

Most parts of some milkweeds can be used as food. Young shoots several inches emerged from the ground before the leaves begin to unfold are best, looking and tasting somewhat like asparagus. It is best to look into the proper cooking of any wild plant. With milkweeds, some parts must be boiled in several changes of water before they are safe.

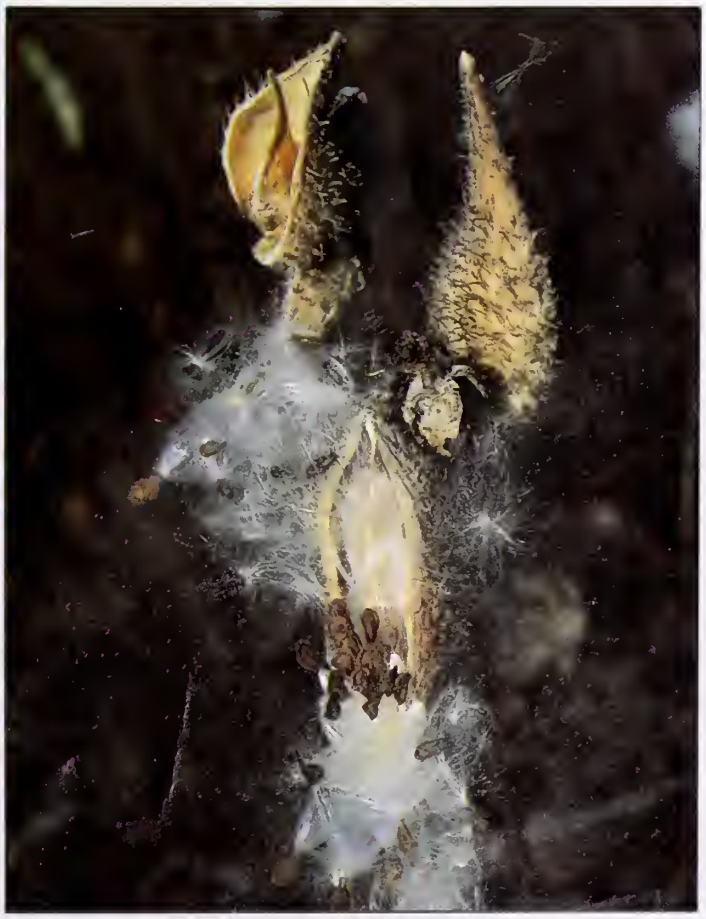
The seedpods of milkweeds are distinctive, not only among plants, but from each other. The large gray-green warty pods of the common milkweed break open at maturity to allow the shiny brown seeds to float away with the breeze on their buoyant white down. In World War II this down was gathered and used in life jackets as a substitute for kapok, supplies of which were cut off by the early Japanese conquests in southeastern Asia and the East Indies. Dried pods on their leafless stalks are frequently used in dried arrangements, and when dipped in bright paint or gilt, for Christmas decorations.

Besides reproducing from seeds, milkweeds also spread from long-lived root runners, making them difficult to eradicate where they are not wanted.

The swamp milkweed, *A. incarnata*, is common in Virginia. The flower is similar in color to that of the common milkweed, but the flower heads and pods are not as large. Perhaps our showiest milkweed is Butterfly weed, *A. tuberosa;* usually a pale yellow to bright orange, this plant is very attractive to its insect namesake. It is also called pleurisy-root for a once fancied cure for that serious disease, and also chigger-flower for harboring that irritating pest. Butterfly weed has a watery juice instead of the typical white latex. While most milkweed blossoms are yellow to purple, there are also white species.

Once closely examined a milkweed blossom is hard to confuse with that of any other family of plants. But if you can't seem to tie down a particular specimen, don't become too frustrated, as milkweeds do hybridize. It's best to just enjoy them on the stalk, as one experience with the sticky "milk" on your hands will convince you. □

(Facing page, clockwise from top left): Green pods of butterfly weed; swamp milkweed; wind disperses downy seeds of milkweeds; butterfly weed.



KNUTH

Bird of the Month

by Carl "Spike" Knuth

The Tree Swallow

The gray ghosts of old dead trees stood silently in the waters of Laurel Bed Lake in Russell County on the Clinch Mountain Wildlife Management Area. The drifting clouds and rippling water seemed, at first, to be the only things moving in the early June morning breeze. After taking a closer look, however, I realized that the old dead tree stumps and trunks were alive with small dark-backed, white-breasted birds. A small colony of tree swallows had found a mini-refuge high in the mountains of southwest Virginia.

Leaving timber standing in man-made lakes has become a common practice of the fish division of the Commission of Game and Inland Fisheries. It is done for the benefit of fish and fishermen but has resulted in providing excellent above-water cover and nesting areas for the tree swallow.

The tree swallow is regarded as one of the hardiest of Virginia's swallows, arriving in the early spring. The males precede the females by a month or so. The tree swallow is about six inches long, but may appear longer at rest because its closed, folded wings extend beyond the end of its tail. The upper parts of the tree swallow are iridescent, greenish-blue while its underparts are white. Its wing primaries and secondaries, as well as its tail feathers, are a dusky black. The female is similar but a little duller while young birds are brownish-gray with white underparts. Among its local names are whitebreasted swallow, white-bellied swallow, eave swallow and stump swallow.

The tree swallow is found all over North America, breeding generally in the northern tier of states from Virginia to Colorado and the Pacific Northwest, north to Alaska and over most of Canada. Water appears to be an essential habitat requirement. This bird shows a decided preference to live in or around marshes, swamps, lakes, rivers and other wet areas. Other than its ground-based nesting habitat, the tree swallow needs only the open air. It flies with great precision and rapid wing beats, gliding with shoulders forward and wing tips down. Its wings appear to be a little wider than those of other swallows as it swoops, dives and glides after insects. Its call is a cheerful, liquid twittering or chattering.

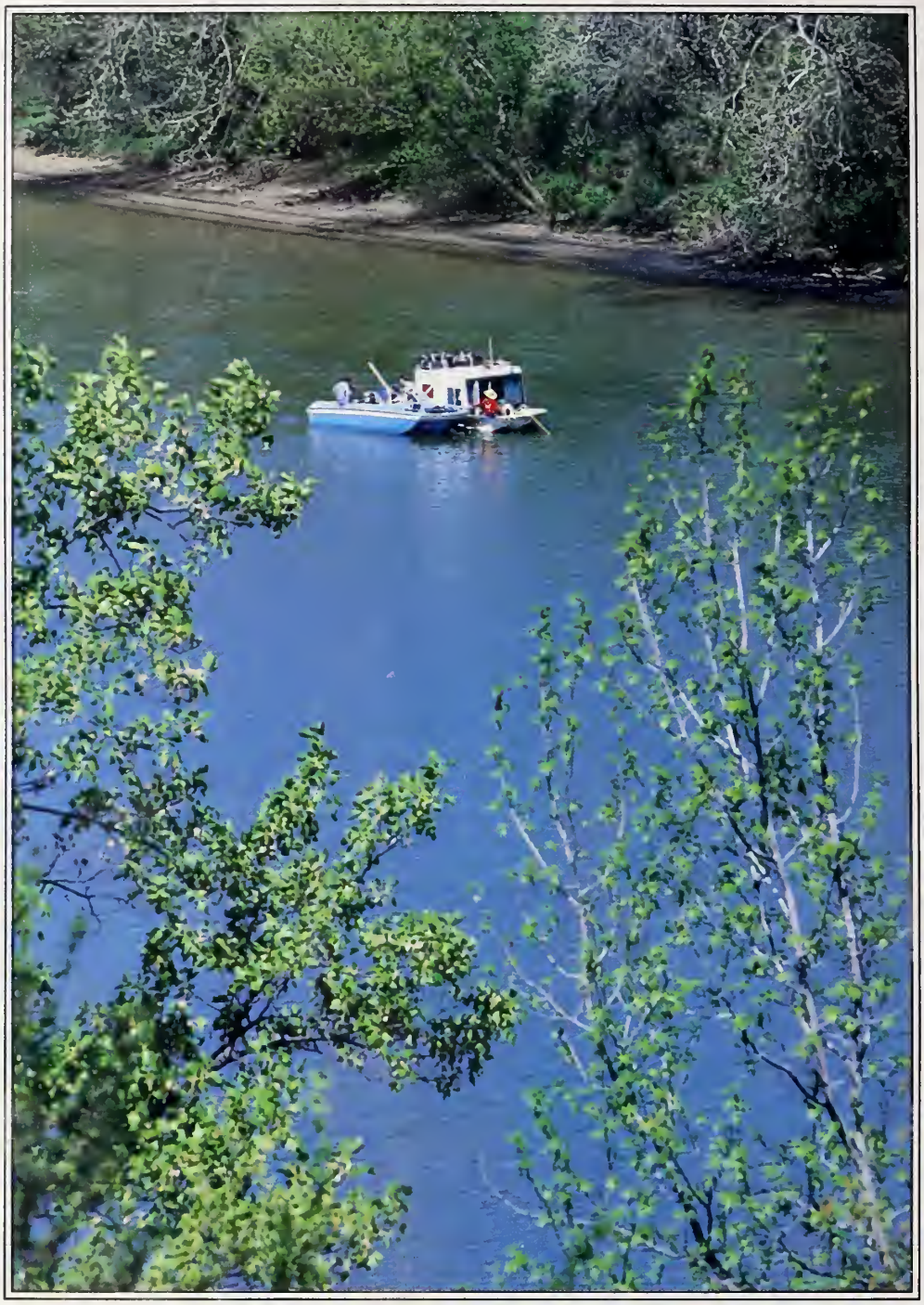
Soon after the female joins the male they go "house-hunting." In the wilds they choose natural cavities in dead or dying trees or in abandoned woodpecker holes. Occasionally, a number of swallows will nest in a colony if there is an abundance of nesting cavities. If not, however, they'll fight jealously for a nest territory. The tree swallow will take readily to a variety of man-made boxes and often utilize nest boxes set out for bluebirds. One of the most unusual nest sites I've encountered was a clothespin bag hanging on a clothesline up against a house.

The nest itself is made up of grasses lined with feathers. Four to seven eggs and sometimes more than one brood may be reared. The young grow quickly on a diet of abundant summer insects. The only other foods which tree swallows may eat are the small berries of bayberry or wax myrtle, while roosting during migration when insects are scarce.

Tree swallows begin staging for migration in the latter part of August, usually joining barn swallows and purple martins. Young of the year have inflated populations to larger numbers and they begin to gather anywhere that they can sit together side by side. Often on cold evenings or mornings they sit on the roofs of houses, soaking up what heat they can from the roofing that was absorbed during the day or from inside the house. They are also drawn to heat rising from paved roads as are insects they are seeking. This results in many of these swift fliers being killed by automobiles.

All day long they feed, hedgehopping, swooping and diving. I watched a flock one day swarming about in the wind and rain along a lake shore like swirls of leaves, but generally in a disciplined flight pattern as if being directed by air traffic controllers. Their feeding "strategy" seeemed to be to circle around, fly or coast into the wind over a wide expanse of lawn on the leeward side of a group of large willows and cottonwoods along the shore. They coast in low over the clearing, catching insects that were being blown from the trees or seeking shelter from the wind.

When the tree swallow does begin to migrate, it proves to be a spectacular event if one is perceptive enough to realize it. It took me the better part of a September day to discern such an event. I had noticed what I thought was a small flock of tree swallows merely milling about, feeding on a recent insect hatch. It appeared, at first, that this same flock was feeding there for hours. Then I happened to watch one bird as it circled, swooped and dived. It slowly moved southward, further and further away until out of sight. Now my interest was piqued. I picked up on another bird and it, too, slowly meandered its way south in a moving circle. I watched a few others and was finally able to picture the whole panorama. What I had determined to be one small flock feeding around that area was in reality a trememdous, moving mass of tree swallows leisurely migrating southward. For two days or more what must have been tens of thousands of tree swallows flew past that point, heading for their wintering grounds in the Carolinas to the Gulf States, Mexico, Central America, the Bahamas and the West Indies. □



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